ROUTE CONCEPT REPORT

ROUTE 53

1-LAK-53-0.0/7.4

All information in this Route Concept Report is subject to change as conditions change and new information is obtained.

I approve this Route Concept Report to guide today's route development decisions and/or recommendations.

Approval Recommended:

JERRY HAYNES Date
Deputy District Director
Office of Project Development
and Construction

Approval Recommended:

RICK KNAPP 7/25/89 Date
Deputy District Director
Office of Planning
and Programming

Approved:

E. F. POCH 9-29-89 Date
District Director
of Transportation
District 1

ROUTE CONCEPT REPORT

Statement of Planning Intent

The Route Concept Report (RCR) is a planning document which describes the Department's basic approach to development of a given route. Considering reasonable financial constraints and projected travel demand over a 20-year planning period, the RCR defines an appropriate type of facility and level of service for each route. The objective of the effort is to provide a better basis for the development of the State Transportation Improvement Program and for determination of the appropriate concept for future highway projects.

Route Concept Reports are prepared by District staff in cooperation with local and regional agencies. They will be updated as necessary as conditions change or new information is obtained.

Route Concept Reports are a preliminary planning phase that lead to subsequent programming and the project development process. As such, the specific nature of proposed improvements (i.e., roadway width, number of lanes, access control, etc.) may change in later project development stages, with final determinations made during the project report and design phases. Roadway widths, as discussed in Route Concept Reports, are used for the purpose of estimating improvement costs, and may change depending upon operating conditions and design standards at the time of actual project development.

Assumption

The following assumptions form the basis for the development of Route Concept Reports:

1. The relative importance of State highways in the District can generally be established based on the functional classification of the routes. In general, higher priorities will be given to major improvements on principal arterial routes as compared to minor arterials and collectors.

2. For routes the District can reasonably expect to improve (generally Principal Arterials), realistic concept LOS must be established for each route in order to have route concepts and route development plans which are possible to achieve, given a forecast of future revenues. A concept LOS is not established on routes which will only be rehabilitated and/or maintained.

3. Level of service and capacity calculations are based on the 1985 Highway Capacity Manual. Previous Route Concept Report level of service and capacity calculations were based on the 1965 Highway Capacity Manual.

4. The 1985 Highway Capacity Manual Chapter addressing two-lane highways does not set a maximum limit on the level of service attainable based on restricted design speed. District 1 uses the table in Chapter 5 page 15 to limit the level of service attainable due to restricted design speed. Further, District capacity calculations include a factor to increase capacity based on the length of passing lanes in two-lane segments.

5. Determinations of future LOS for the routes in District 1 are based in part upon Statewide and District forecasts of State highway travel developed by Caltrans.

6. Route concepts are generally uniform for an entire route, unless there is a major change in function along the route.

7. Major projects will be developed to meet standards acceptable to the Federal Highway Administration in order to receive Federal funding for projects. Otherwise, a "design exception" will be prepared during the project development process.

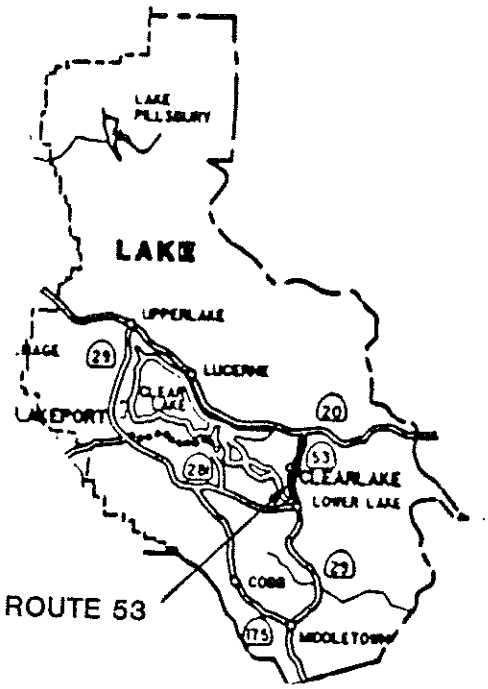
8. For all routes, safety projects will be pursued on an on-going basis in order to be responsive to safety problems as they are identified.

9. No planned or programmed improvements were assumed to be complete in analyzing present and future operating conditions. Section V of the Route Concept Report details programmed improvements in the 1988 STIP, with all costs in 1988 dollars.

10. An environmental document will not be required for Route Concept Reports. However, individual improvement projects identified in Route Concept Reports will follow the appropriate environmental process as required by law.

SUMMARY

ROUTE CONCEPT REPORT
FOR
ROUTE 53
1-LAK-53-0.0/7.4



ROUTE DESCRIPTION

Route 53 originates at Route 29 in the community of Lower Lake, and proceeds northerly to Route 20 east of the community of Clearlake Oaks. The Route is approximately seven and one-half miles in length and is a Federal Aid Primary, Rural Principal Arterial. Route 53 serves local, regional, and some interregional traffic.

The entire Route is eligible for designation as a Scenic Highway but has not been officially designated, and it is included in California's Freeway and Expressway Systems. Route 53 is not included in the "SHELL" Route System for the movement of extra-legal (permit) loads or in the national network for STAA trucks; however, STAA trucks are allowed to use the Route.

The existing facility is typically 2-lane expressway with 12 foot wide lanes and 2- to 8-foot wide paved shoulders. Horizontal alignment is generally good (moderate curves), and vertical alignment reflects the level to rolling terrain. Traffic volumes range from 6,250 to 14,100 AADT. Truck volumes range from 5% to 7% of AADT, and peak month average daily traffic is nearly 120% of AADT.

OPERATING CONDITIONS

Route 53 currently operates at a "D" level of service. If no improvements are made, level of service is expected to deteriorate to "F" on all segments of Route 53 by the year 2010.

ROUTE CONCEPT/RATIONALE

Route 53 should be upgraded to 4-lane freeway/expressway for its entire length. This Route should be maintained and rehabilitated as necessary. Some portions of the route may require rehabilitation prior to construction of a 4-lane facility. Roadway widths should be satisfactory to allow interim rehabilitation without widening. Safety and operational improvements should be considered as necessary.

The recommended concept LOS for this Route is "C".

This Route Concept for Route 53 was selected based on the Route's function as a Principal Arterial, relatively high traffic volumes, regional support for a 4-lane highway facility, and feasibility of development to 4-lane standards.

CONCERNS

Level of service (both current and future) is a concern on both segments of Route 53:

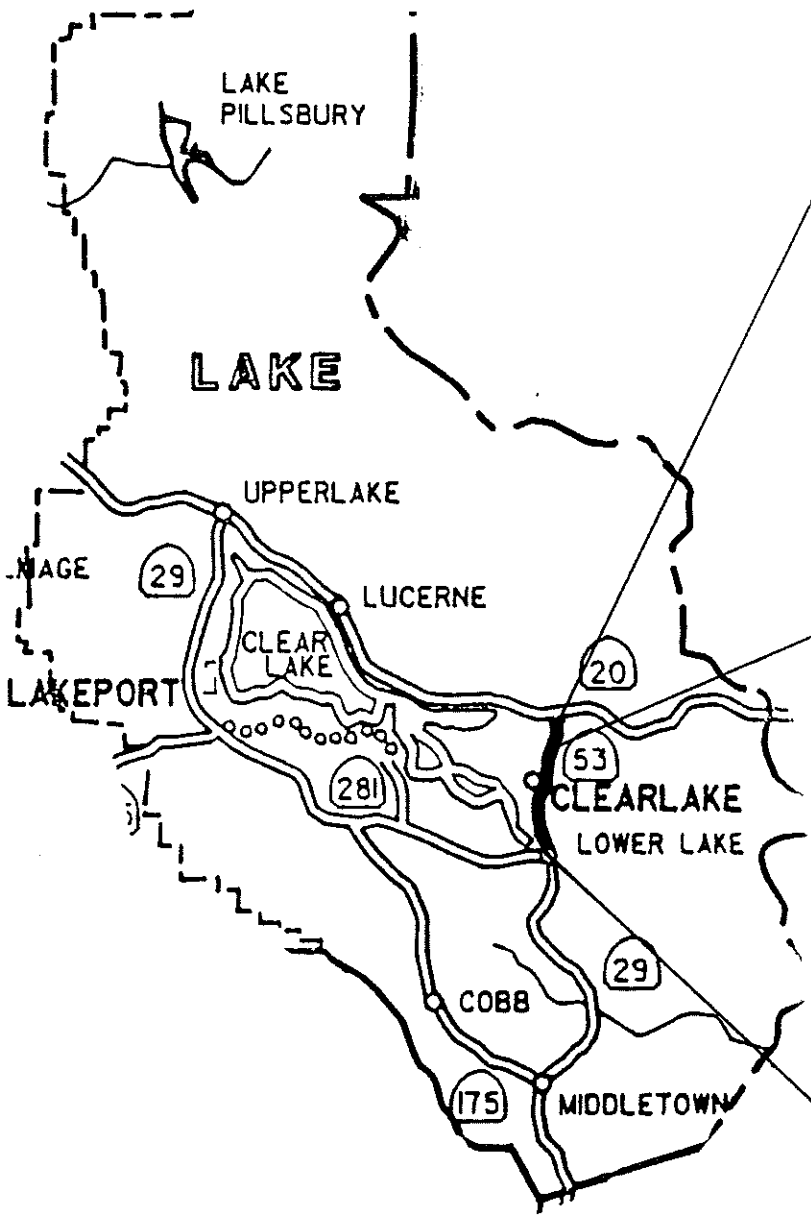
- LAK-53-0.0/3.5
- LAK-53-3.5/7.4

IMPROVEMENTS NEEDED TO ACHIEVE ROUTE CONCEPT

Improvements necessary to achieve the Route Concept for Route 53 include three projects to upgrade all of the Route to 4-lane freeway/expressway. These projects have an estimated cost of $22.4 million in 1988 dollars (one of these projects, estimated to cost $11.8 million, is included in the 1988 STIP).

Safety and operational improvements should be considered as necessary.

PRESENT AND FUTURE OPERATING CONDITIONS
ROUTE 53



LAK-53-3.5/7.4
Terrain: Rolling
Gradeline: Rolling

Existing (1988)
2-lane Expressway
32'-34' Paved Width
6250-8850 AADT
"D" LOS
V/C: 0.41
Accident Rate:
less than 1.5 times
the statewide average

Future (2010)
16500-23300 AADT
"F" LOS
D/C: 1.07

LAK-53-0.0/3.5
Terrain: Rolling
Gradeline: Flat

Existing (1988)
2-lane Expressway
28'-40' Paved Width
6250-14100 AADT
"D" LOS
V/C: 0.49
Accident Rate:
less than 1.5 times
the statewide average

Future (2010)
16500-37200 AADT
"F" LOS
D/C: 1.30

ROUTE CONCEPT

- Route 53 should be upgraded to 4-lane freeway/expressway standards. The Route should be maintained and rehabilitated as necessary.
- Safety and operational improvements should also be considered as necessary.
- The concept level of service for this Route is "C".

ROUTE CONCEPT REPORT

ROUTE 53

I. ROUTE DESCRIPTION AND PURPOSE

Description

Route 53 originates at Route 29 in the community of Lower Lake. It proceeds northerly, through the City of Clearlake to Route 20, about five and one-half miles east of the community of Clearlake Oaks. Route 53 is approximately seven and one-half miles in length. The post mile description of this Route is 1-LAK-53-0.0/7.4.

Route Purpose

Route 53 is functionally classified as a Rural Principal Arterial. It is a Federal Aid Primary Route, is a part of the California Freeway and Expressway System, and is eligible for designation as a Scenic Highway but has not been officially designated. Route 53 combines with portions of Route 20 (MEN-20-33.2/44.1, LAK-20-0.0/8.3, and LAK-20-31.6/46.5) and Route 29 (LAK-29-20.3/52.5) to provide the Principal Arterial routing from Route 101 to Route 5 (Interstate) in the Central Valley.

Route 53 is not included in the "SHELL" Route System for the movement of extra-legal (permit) loads or in the national network for STAA trucks; however, STAA trucks (kingpin to rear axle lenth of up to 40') are allowed to use the Route.

Route 53 serves moderate to high volumes of local traffic in the community of Lower Lake (population approximately 1,050), and through the City of Clearlake (population approximately 10,750, and the largest city in Lake County). The Route also serves Anderson Marsh State Park, which is located about one mile north of the Community of Lower Lake along Route 53.

The Route experiences generally light to moderate non-motorized traffic, with concentrations in the community of Lower Lake and the City of Clearlake.

II. Local & Regional Issues

Land Use

Land use adjacent to Route 53 is currently intensive in and around the community of Lower Lake and within the City of Clearlake. Primary uses are commercial and residential. Land use north of the City of Clearlake is generally low density residential and open space.

Development of land in the Route 53 corridor is expected to continue to occur as Lake County experiences rapid growth. Further, this corridor, combined with the Route 29 corridor, is expected to accommodate much of the County's growth.

Long-term right of way needs are expected to include right of way to develop Route 53 to 4-lane freeway/expressway standards. This is expected to include additional right of way at locations where interchanges are or will soon be needed.

Environmental Considerations

Primary environmental considerations for Route 53 include extreme archaeological sensitivity throughout the Route, and rare and endangered plants near the community of Lower Lake.

Regional Transportation Planning

The 1988 Lake County Regional Transportation Plan, Needs Element, lists the upgrading of Route 53 to 4-lane freeway/ expressway standards as a need, with initial priority on the segment from Lower Lake to Ogulin Canyon Road.

At the present time, Caltrans and the Lake County/City Area Planning Council (LC/CAPC) are undertaking a cooperative study to determine appropriate Route Concepts for State Highways in Lake County, and to develop priorities for the improvement of State Highway Routes.

The five highest priority new facility improvements identified in this study (priorities #2 and #3 are on Route 53) include:

Priority No.	Improvement Location	Type of Improvement
1	LAK-29-27.9/31.1 Route 281 to Route 175	4-E
2	LAK-53-0.0/3.5 Convert Clearlake Expressway to Freeway	4-F
3	LAK-53-0.0/1.0 & LAK-29-19.6/21.5 Lower Lake Bypass	4-F
4	LAK-29-R34.6/R40.9 Kelseyville to South Lakeport	4-E
5	LAK-29-23.9/27.9 West of Lower Lake to Route 281	4-E

III. EXISTING FACILITIES

Route 53 is generally a 2-lane expressway, traversing rolling terrain. Lane width is generally 12', and paved shoulders typically range from 2- to 8-foot. Actual lane, paved shoulder, and total paved width ranges are shown in the table following:

HIGHWAY WIDTH
ROUTE 53

Post Mile	Location	No. of Lanes-Highway Type	Lane Width	Paved Shoulder Width	Total Paved Width
LAK-53-0.0/3.5	Route 29 to one-half mile south of 40th. Avenue	2-E	12'	2'-8'	28'-40'
LAK-53-3.5/7.4	One-half mile south of 40th. Avenue to Route 20	2-E	12'	4'-5'	32'-34'

Horizontal and vertical alignment on Route 53 are both generally good with relatively large radius curves and few steep grades, as the Route traverses generally mildly rolling terrain.

Most of the right of way on Route 53 is owned in fee by the State. Typically it is 140' in width or wider.

Greyhound Bus Lines utilizes Route 53 in providing service between Clearlake and San Francisco.

No State-owned park and ride lots have been developed along Route 53.

As previously noted, Route 29, a Rural Principal Arterial, intersects Route 53 at its southern terminus within the community of Lower Lake. Route 20, also a Rural Principal Arterial, intersects Route 53 at its northern terminus (east of Clearlake Oaks).

Pierce Field, a public use airport, is located immediately adjacent to Route 53 between Lower Lake and Clearlake. This airport has approximately 65 based aircraft and approximately 19,000 aircraft operations annually. A new airport site has been identified on Quackenbush Mountain to replace Pierce Field; however, little progress has been made beyond site identification. No railroads parallel or cross Route 53.

IV. OPERATING CONDITIONS

Traffic Information

The table below summarizes projected Annual Average Daily Traffic (AADT) volumes for the 1988 year, and includes projections of future AADTs for the year 2010 on the major segments of Route 53. Also included are 20-year growth factors, truck volumes expressed as percent of AADT, and peak hour volume to capacity (v/c) ratios.

TRAFFIC DATA
ROUTE 53

Post Mile/ Location	AADT Present (1988)/ Future (2010)	Present Peak Hour Volume[1]	Percent Trucks In AADT[2]	Average V/C Present (1988)/ Future (2010)	20-Year Growth Factor
LAK-53-0.0/3.5 (Rte. 29 to one half mile north of 40th. Ave.)	6250-14100/ 16500-37200	550-1300	5-7	.49/ 1.30	2.60
LAK-53-3.5/7.4 (One half mile north of 40th. Ave. to Rte. 20)	6250-8850/ 16500-23300	550-800	5-7	.41/ 1.07	2.60

Peak month average daily traffic volumes for Route 53 average nearly 120% of AADT. Peak hour volumes on Route 53 are about nine percent of the AADT.

Level of Service

The chart on the following page identifies the present and future levels of service along Route 53:

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[1] Calculated based on "1987 Traffic Volumes on California State Highways".

[2] Weighted average from "1986 Annual Average Daily Truck Traffic on California State Highways".

LEVEL OF SERVICE
ROUTE 53

Post Mile	Location	Present (1988)	Future (2010)
LAK-53-0.0/3.5	Route 29 to one-half mile north of 40th. Avenue	D	F
LAK-53-3.5/7.4	One-half mile north of 40th. Avenue to Route 20	D	F

Accident Rates

For the period 7-1-85 through 6-30-88, actual reported accident statistics for Route 53 were compared with the expected Statewide average for similar facilities. Based on the segmentation listed in the following table, no segments have accident rates greater than 1.5 times (150% of) the expected Statewide average. However the LAK-53-0.0/3.5 segment has an accident rate which slightly exceeds the statewide average. Further, specific locations may exist with poor accident experiences. The District has an established accident surveillance and monitoring process which investigates and recommends safety improvements for specific locations with historically poor accident records as they are identified.

Actual accident rates and expected Statewide average accident rates (both expressed as accidents per million vehicle miles) are shown in the table below:

ACCIDENT RATES
ROUTE 53

Post Mile	Location	Accident Rate	Statewide Average	Accident Rate As a Percent of Statewide Average
LAK-53-0.0/3.5	Route 29 to one-half mile north of 40th. Avenue	1.46	1.20	122%
LAK-53-3.5/7.4	One-half mile north of 40th. Avenue to Route 20	0.77	1.00	77%

Historic Maintenance and Road Closure Locations

No chronic maintenance or road closure locations have been identified on Route 53 over the past three years. Further, no chronic maintenance or road closure concerns were identified in the previous Route Concept Report for Route 53.

V. PROGRAMMED IMPROVEMENTS

Two improvements on Route 53 are included in the 1988 State Transportation Improvement Program (STIP). The first project involves the modification of frontage roads and intersections between Lower Lake and Clearlake (LAK-53-1.1/1.6). This project is programmed in the 1988/89 fiscal year and is expected to cost approximately $0.7 million in 1988 dollars.

The second project involves the widening of 2-lane expressway to 4-lane expressway and constructing frontage roads between Lower Lake and one-half mile north of 40th Avenue (LAK-53-0.0/3.5). This project is programmed for the 1992/93 fiscal year at an estimated cost of $11.8 million in 1988 dollars.

VI. ROUTE CONCEPT AND RATIONALE

Concept for Route Improvement

Route 53 has the highest Annual Average Daily Traffic (AADT) volumes of any State highway in Lake County, serves the largest city in Lake County, and is in an area with a very high population and traffic growth. It is a part of the Rural Principal Arterial routing from Route 101 to Route 5 (Interstate), and regional support for a 4-lane facility exists.

Therefore, THE CONCEPT FOR ROUTE 53 IS DEVELOPMENT TO 4-LANE FREEWAY/EXPRESSWAY STANDARDS THROUGHOUT ITS ENTIRE LENGTH.

Level of service on Route 53 is currently "D" during peak hour periods. With projected traffic increases, level of service is expected to decrease to "F" on the entire Route by the year 2010, if no capacity improvements are made.

Considering the Routes Rural Principal Arterial status, and the 4-lane concept, A "C" CONCEPT LEVEL OF SERVICE HAS BEEN ESTABLISHED.

Concept For Rehabilitation

ROUTE 53 SHOULD BE MAINTAINED AND REHABILITATED AS NECESSARY. Based on current rehabilitation standards (3-R) in the Caltrans Highway Design Manual, existing roadway widths on Route 53 should be generally adequate to allow rehabilitation at the present width. Some portions of the Route may require rehabilitation on the basis of existing width prior to construction of a 4-lane facility.

Safety and Operational Improvement Concepts

Safety does not appear to be a significant factor in considering the need for improvement of Route 53, since the Route has no segments with accident rates exceeding one and one-half times the Statewide average based on similar facilities. However, safety improvements at spot locations will be considered as necessary.

Bridge replacement, storm damage, and operational improvement projects will also be considered as necessary. These projects, in addition to safety projects, should be constructed to appropriate State and/or Federal standards.

Caltrans is currently barrier striping two-lane highways to comply with Federal standards. This will reduce the number of passing opportunities (and the level of service) on most two-lane highways (including Route 53). While a number of barrier stripe mitigation projects have been identified within District 1, to date none have been identified on Route 53. Considering imminent development of nearly one-half the Route to 4-lane expressway standards, barrier stripe mitigation is not considered necessary for Route 53.

Route Concept Function

This Route Concept should serve as a guide for long range planning of improvements to Route 53. It will protect the State's investment in the Route, while providing for a facility that will accommodate the area's anticipated rapid traffic growth.

Alternative Concepts Considered

Since traffic volumes are substantially higher on the southern portion of the Route, two alternatives which would develop only southern portions of the Route to 4-lane freeway/expressway were considered. The first would develop only the LAK-53-0.0/3.5 segment to 4-lane freeway/expressway, and the second would develop only LAK-53-0.0/5.4 to 4-lane freeway/expressway. Neither of these was considered appropriate, since level of service on the entire Route is expected to fall to "F" within the 20 year period considered in this report.

VII. Areas of Concern

The following considers areas of concern on Route 53 based on an analysis of level of service and accident history. A segment is considered to be an "area of concern" if:

1. The concept level of service will not be achieved under present or future traffic conditions, or the segment operates at capacity during peak hour.

2. The total accident rate exceeds one and one-half the Statewide average for similar facilities.

On the following chart, an "X" indicates a concern based on these criteria:

AREAS OF CONCERN
ROUTE 53

Post Mile	Location	Level of Service Present (1988)	Level of Service Future (2010)	Accident Rate
LAK-53-0.0/3.5	Route 29 to one-half mile north of 40th Avenue	X	X	____
LAK-53-3.5/7.4	One-half mile north of 40th Avenue to Route 20	X	X	____

VIII. ULTIMATE TRANSPORTATION CORRIDOR

It is anticipated that right of way will be needed to develop Route 53 to 4-lane freeway/expressway standards. Additional right of way may be needed at locations where interchanges are or will soon be needed. Early identification of right of way needs for the route could lead to inclusion in City and County planning and zoning, and ultimately result in reduced right of way costs.

IX. IMPROVEMENTS NECESSARY TO ACHIEVE THE ROUTE CONCEPT

Improvements necessary to maintain the concept level of service through the year 2010 on Route 53 include three projects to upgrade all of the Route to 4-lane freeway/expressway standards. These projects have a total estimated cost of $22.4 million in 1988 dollars (one of these projects, estimated to cost $11.8 million, is included in the 1988 STIP).

Safety and operational improvements should be considered as necessary.

X. COORDINATION WITH THE DISTRICT 1 LONG RANGE OPERATION PLAN

No operational improvements for Route 53 are proposed in the District 1 Long Range Operation Plan (October 1985).

DISTRICT 1 ROUTE 53
ROUTE CONCEPT REPORT SUMMARY
1-LAK-53-0.0/7.4

RCR Segment	Post Mile	ROUTE CONCEPT LOS	ROUTE CONCEPT Facility	RIGHT OF WAY REQUIREMENTS Ultimate Transportation Corridor	RIGHT OF WAY REQUIREMENTS Local Master Plan
1	LAK-53-0.0/3.5	C	4-F/E	Right of way to widen to a 4-lane Freeway/Expressway	None Shown
2	LAK-53-3.5/7.4	C	4-F/E	Right of way to widen to a 4-lane Freeway/Expressway	None Shown

CONCEPT RATIONALE:

This concept was selected based on the Route's function as a Rural Principal Arterial, the area's high population and traffic growth, level of service concerns, feasibility of development to 4-lane standards and regional support for a 4-lane facility.

AREAS OF CONCERN

Current (1988): PM LAK-53-0.0/3.5 LOS Concern
PM LAK-53-3.5/7.4 LOS Concern

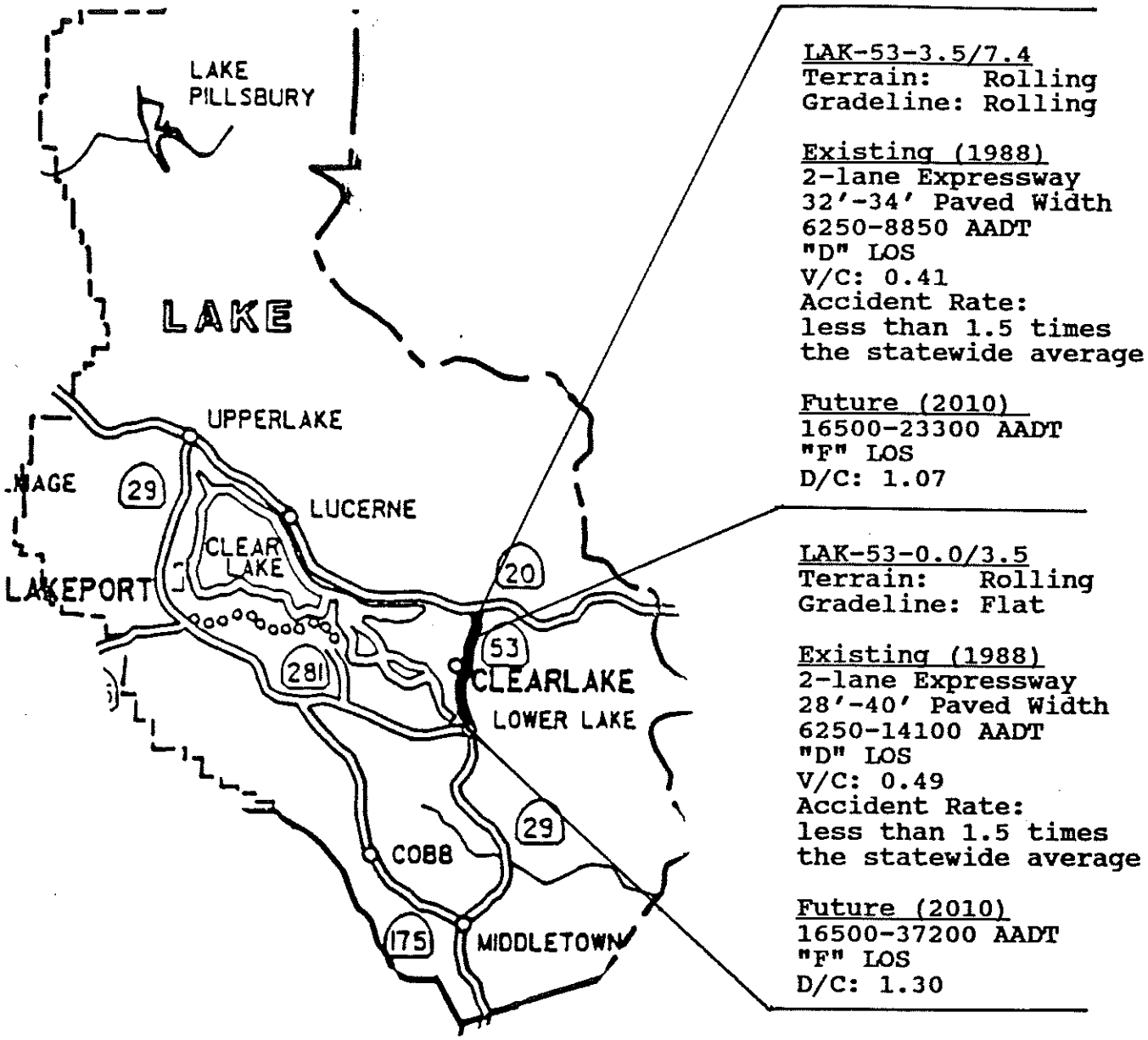
Future (2010): PM LAK-53-0.0/3.5 LOS Concern
PM LAK-53-3.5/7.4 LOS Concern

IMPROVEMENTS

Improvements necessary to achieve the Route Concept for Route 53 include three projects to upgrade all of the Route to 4-lane freeway/expressway. These projects have an estimated cost of $22.4 million in 1988 dollars (one of these is the LAK-53-0.0/3.5 project, estimated to cost $11.8 million, and included in the 1988 STIP).

Safety and operational improvements should be considered as necessary.

PRESENT AND FUTURE OPERATING CONDITIONS
ROUTE 53



ROUTE CONCEPT

- Route 53 should be upgraded to 4-lane freeway/expressway standards. The Route should be maintained and rehabilitated as necessary.
- Safety and operational improvements should also be considered as necessary.
- The concept level of service for this Route is "C".